


System zum Wiedergeben von visuellen Informationen

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Inventor: GOLDSCHIEDER DANIEL (AT)
Applicant: FRIDLEY TECHN LTD (VG)
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Abstract of DE19545882

To position advertising content in a telecommunication system, for example known throughout the world as the Internet, with a high level of acceptance by system users, it is proposed to transmit within a television signal which can be reproduced by a television receiver an address (HTTP) for a server program of the digital communication network. Optical signals are transmitted to the user on the screen of the television receiver in any form (in the form of a marking or plain writing). The address (HTTP) is evaluated at the command of the user to the effect that the content of the server program and other visual information which can be retrieved using the server program, in particular advertising-related information, can be reproduced on the screen of the television receiver.

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Method of reproducing additional information contained in a television or radio programme signal

In order to make the ordering of products presented on television or radio as simple as possible for the television or radio broadcast user and simultaneously to guarantee the legal security required for ordering, it is proposed to transmit additional information, particularly in the form of text and possibly graphics, within the programme signal in temporal correlation with the programme content and to decode it at the receiving end. The additional information received is stored temporarily at the receiving end for a specific period of time. Plain text and possibly graphics information contained in the additional information last received is reproduced for a specific period of time in response to a first command from the user. During the reproduction of the plain text and possibly the graphics information, ordering or selection information associated with the plain text and possibly graphics information is extracted from the additional information last stored temporarily and forwarded to an automatic exchange (e.g. modem) in response to a second command from the user.

Description

The invention relates to a method according to the pre-characterising part of claim 1. A method of this kind is known from Rundfunktechnische Mitteilungen, Vol. 1, 1978, "Anlage zur Aufbereitung und Einblendung von Untertiteln nach dem englischen Teletext-Standard" [System for processing and inserting subtitles in accordance with the British teletext standard].

It is known from the aforementioned literature reference to insert subtitles into the television picture in the case of foreign-language television sound or to assist the deaf. The inserted subtitles are in temporal correlation with the television picture.

It is furthermore known to present products in television commercials and to specify the prices and the telephone numbers by means of which the products advertised previously can be ordered separately for each country at the end of the commercial. However, this process referred to as "teleshopping" has the disadvantage that the relevant telephone numbers have to be written down by the television broadcast user. The direct reference between the television presentation of the product and the display of the price and the telephone number moreover suffers. In addition, after writing down the telephone number, the television broadcast user has to order by telephone, with a large number of call attempts being required if a large number of television broadcast users wish to order at the same time.

The aim of the invention consists in turning a method of the type mentioned at the outset to good use for the ordering of products in order to make ordering as simple as possible for the user and simultaneously to guarantee the legal security required for ordering.

This problem is solved according to the invention by the characterising features of claim 1.

Advantageous embodiments and developments of the method according to the invention according to claim 1 will be clear from the dependent claims.

The invention is based on the concept of giving the television or radio broadcast user the opportunity to retrieve plain text information during the graphic or acoustic

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presentation of products or services at the touch of a button, rendered visible by insertion into the television picture or reproduction on a display on the receiver. In particular, the plain text information consists of more details about the product, including the price, required for the user to make a decision about purchase. To order, the user simply has to press once again on a special key on his receiver or his remote control, after which the ordering procedure is initiated automatically. The user furthermore receives an acknowledgement once an ordering procedure has been initiated.

The invention will now be described in more detail with reference to one embodiment illustrated in the accompanying drawings, in which:

Fig. 1a and Fig. 1b show two teletext pages containing additional information;

Fig. 2 shows a receiving device according to the invention for decoding the additional information;

Fig. 3 is a representation of the time sequence of individual television items and the associated additional information, and

Fig. 4 is a representation of the time sequence of the display of the plain text information and of the time windows for initiating an ordering procedure or transmitting selection information.

The data required for ordering or selection is broadcast in temporal correlation with the television programme as additional information on teletext pages similar to subtitles with specific page numbers known to the receiving device. The example shown in Fig. 1a ("Red summer dress for DM 19,95") contains plain text information, a telephone number and a product number for ordering the summer dress. Alternatively, as shown in Fig. 1b, a number for selection identification, e.g. for an anonymous poll ("Will XYZ obtain the next election?") can be transmitted instead of the product number.

Fig. 2 is a block diagram for a receiving device according to the invention, set up externally and connected to a television set via a scart cable. The television signal with the teletext data received from the television set is sent via the scart cable to a

teletext decoder installed in the receiving device and to an inserter. The teletext decoder 1 detects the pages from the incoming teletext data requested by a controller and checks the content of the selected pages (see Fig. 1a or Fig. 1b) for additional information.

A receiving device according to the invention installed in a television set is designed in a similar manner to a receiving device with a scart cable. When the receiving device is installed, the inserter is dispensed with and the RGB signals at the output of the teletext decoder are sent directly to the television screen via a switch and corresponding amplifiers.

If error-free additional information is detected by the teletext decoder 1, it is stored temporarily in a RAM, a message is sent to the controller 3 and a corresponding display is provided for the user, e.g. the flashing of a green LED display. In the case of receiving devices according to the invention already integrated into television receivers, it is also conceivable to effect corresponding signalling on the front of the casing of the television set.

The presence of additional information can moreover be indicated to the user in that, e.g. a logogram is generated by the teletext decoder, inserted into the television signal by the inserter, returned to the television set via the scart cable and displayed in a corner of the screen together with the selected programme.

Plunder
If additional information is present and the user actuates a key which is associated with the receiving device and can be arranged either on the casing of the receiving device or on the remote control of the television set or on the receiving device according to the invention, a corresponding control signal is transmitted to the controller, after which the teletext decoder 1 can load the additional information last stored temporarily from the RAM 4 and display the plain text information contained therein (Figures 1a and 1b) on the screen of the television set via the inserter.

If the key is pressed a second time by the user, the telephone number from the additional information stored temporarily in the RAM 4 (Figures 1a and 1b) is sent to a modem and a dialling procedure is initiated. A corresponding telephone line from the receiving device according to the invention leads from the modem 5 to a telephone

connection of the user. Once the connection with the dialled subscriber has been established, in the case of ordering information, the product number (Fig. 1a) for the desired product is transmitted together with a device number for identification of the user from a PROM. If, on the other hand, the additional information contains a selection identification number (Fig. 1b), only it is transmitted to the dialled subscriber, without the device number, in order to preserve the anonymity of the user.

The modem indicates successful transmission of the data to the controller, which in turn sends a corresponding message to the teletext decoder for display on the screen. Corresponding display on an associated LED display or on the television set if a receiving device is installed is moreover conceivable.

If, on the other hand, no connection can be established by the modem, the dialling procedure is repeated after a time interval determined by a random generator in the controller. This method of procedure is required, in particular, for the temporal equalisation of repeat dialling, which can occur when an ordering procedure or a selection procedure is initiated by the user in many receiving devices at the same time (e.g. in the case of a competition "The first ten callers win").

The time sequences of the individual television items with the associated additional information and the ordering and selection possibilities are shown in more detail in Figures 3 and 4 in order to illustrate the invention.

Fig. 3(a) shows two successive commercials "Spot A" and "Spot B". Fig. 3(b) shows the additional information "A" for "Spot A" and "B" for "Spot B", all transmitted, e.g. for $t_0 = 20$ sec.

The arrival of the additional information and therefore the possibility of reacting immediately and taking up the offer is indicated to the user by a corresponding display, e.g. by inlaying a logogram into the relevant programme. If, on the other hand, no additional information is detected by the receiving device, e.g. for more than $t_1 = 30$ sec, the display is cancelled again (Fig. 4(a)).

When the user presses the key for the first time (Fig. 4(b)), the plain text information from the additional information "A" is inserted into the current commercial "Spot A". When the additional information "B" arrives, the display changes automatically and

the plain text information relating to "Spot B" is displayed. The plain text information for "Spot B" is cancelled from the screen if the first keystroke is not followed by a second keystroke within, e.g. $t_2 = 100$ sec.

In order to prevent ordering of the wrong product or incorrect selection in the event of the additional information changing unexpectedly, it is provided that any second keystroke to initiate the ordering procedure or selection is ignored for, e.g. $t_3 = 2$ sec after a change (Fig. 4(c)).

In an ordering procedure (Fig. 1a), the dialled subscriber (e.g. a credit card organisation) receives the product number and the device number. It identifies the orderer by way of the device number, sends the address, association where the account is held and the product required to the body responsible for delivery and arranges payment if necessary. A selection procedure (Fig. 1b) is similar to an ordering procedure, except that there is no transmission of the device number to identify the user.

A successful ordering or selection procedure and successful transmission of the ordering or selection data is displayed in a suitable manner for the user by the receiving device.

Instead of the additional information being transmitted by television and inserted into a television picture, the additional information can equally be transmitted in a radio programme signal and reproduced on a display on the radio receiver. A digital radio programme signal is particularly suitable to this end on account of the large transmission capacity. However, an analog radio programme signal (FM and AM signals) provided with an RDS (radio data system) signal is also possible, as the RDS signal still has unallocated identities that can be used for the additional information according to the invention.

Claims

1. Method of reproducing additional information contained in a television or radio programme signal, particularly in the form of text and possibly graphics, transmitted within the programme signal in temporal correlation with the programme content and decoded at the receiving end, characterised in that the additional information received is stored temporarily at the receiving end for a specific period of time, that plain text and possibly graphics information contained in the additional information last received is reproduced for a specific period of time in response to a first command from the user and that during the reproduction of the plain text and possibly the graphics information, ordering or selection information associated with the plain text and possibly graphics information is extracted from the additional information last stored temporarily and forwarded to an automatic exchange (e.g. modem) in response to a second command from the user.
2. Method according to claim 1, characterised in that, when the additional information changes during reproduction, execution of the second command is disabled for a specific period of time.
3. Method according to claim 1 or claim 2, characterised in that the temporary storage of additional information at the receiving end is indicated optically to the user, at least for a fixed period of time.
4. Method according to one of claims 1 to 3, characterised in that the ordering information contains product identification and a telecommunication number, possibly in coded form, and that the automatic exchange carries out a dialling procedure in accordance with the telecommunication number and, once the telecommunication link has been established, transmits the product identification together with a user identification to the called subscriber.
5. Method according to claim 4, characterised in that the product identification extracted and the telecommunication number extracted are stored temporarily and that the user identification is stored permanently.

6. Method according to claim 4 or claim 5, characterised in that, in the event of error-free transmission of the product identification and user identification, the called subscriber transmits an acknowledgement back to the automatic exchange.
7. Method according to claim 6, characterised in that the acknowledgement transmitted back is displayed in a suitable manner on the reproduction device.
8. Method according to claim 6, characterised in that the acknowledgement transmitted back triggers optical and/or acoustic signalling.
9. Method according to one of claims 4 to 8, characterised in that, in the event of an unsuccessful switching attempt or in the event of defective transmission of the product identification and user identification, the automatic exchange carries out another switching and transmission attempt after a waiting period determined in accordance with a law of chance.
10. Method according to one of claims 4 to 9, characterised in that a dialling procedure is only effected if the use of the automatic exchange is approved by the authorised user.
11. Method according to one of claims 1 to 3, characterised in that the selection information contains selection identification and a telecommunication number, possibly in coded form, and that the automatic exchange carries out a dialling procedure in accordance with the telecommunication number and, once the telecommunication link has been established, transmits the selection identification to the called subscriber.
12. Method according to claim 11, characterised in that the selection identification extracted and the telecommunication number extracted are stored temporarily.
13. Method according to claim 11 or claim 12, characterised in that, in the event of error-free transmission of the selection identification, the called subscriber transmits an acknowledgement back to the automatic exchange.
14. Method according to claim 13, characterised in that the acknowledgement transmitted back is displayed in a suitable manner on the reproduction device.

15. Method according to claim 13, characterised in that the acknowledgement transmitted back triggers optical and/or acoustic signalling.
16. Method according to one of claims 11 to 15, characterised in that, in the event of an unsuccessful switching attempt or in the event of defective transmission of the selection identification, the automatic exchange carries out another switching and transmission attempt after a waiting period determined in accordance with a law of chance.

2 pages of drawings

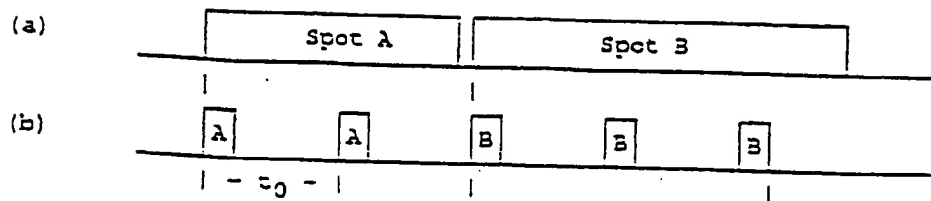


Fig 3

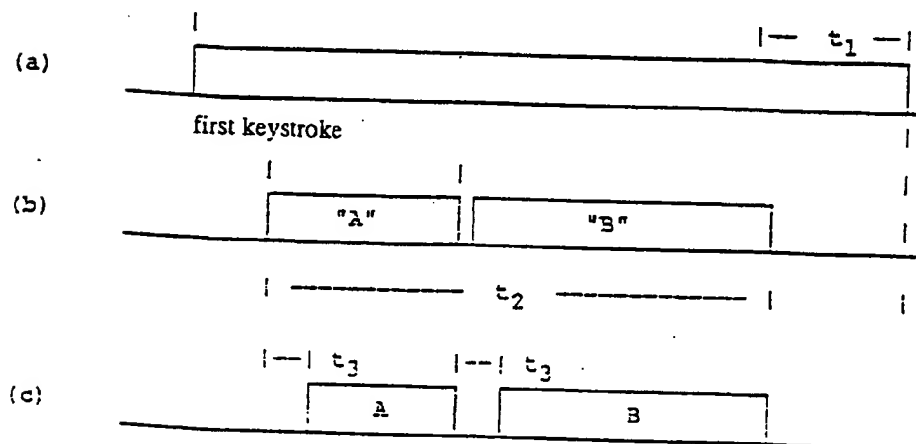


Fig 4

red summer dress for 15.95 DM	
product number	telephone number

Fig 1a

teletext pages

poll: Will XYZ win the next election??	
identification number	telephone number

Fig 1b

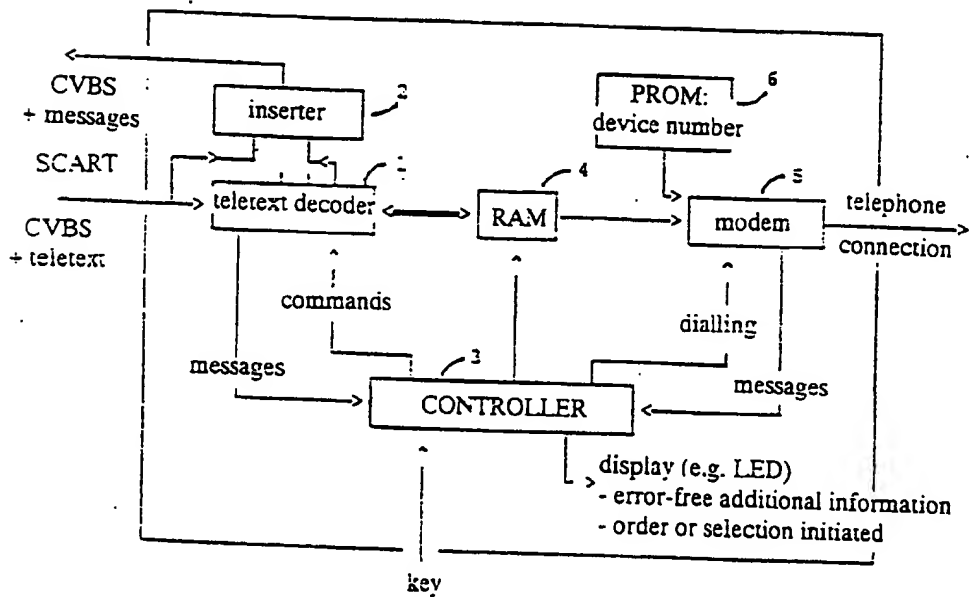


Fig 2

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Device for communication between a television receiver and a telephone set

The device for communication between a television receiver (100) and a telephone set (200), on the one hand, transfers alphanumeric characters from a television picture signal through the telephone set (200) and, on the other hand, transmits characters received by the telephone set (200) via a telephone network or entered via its input panel (201) to the television receiver (100).

The television receiver (100) has a reading device (109) and a character transmitter (117) with a transmission element (118). The reading device (109) contains an analog/digital converter (111), a pixel memory (112) and an analyser (114) which analyses the stored digital values of the CVBS signal and converts recognised alphanumeric character sequences into binary-coded characters transmitted by the character transmitter (117) in the form of a data signal (DS) to the telephone set.

The telephone set (200) contains a microcomputer system (203) with memories (204, 205), a coding and modulating device (208) for generating remote signals (RS) for the television receiver (100), an infrared transmitter (209) for transmitting the remote signals (RS) and means (211, 212 and 213) for receiving and converting the data signal (DS) into signals which can be transmitted on a telephone channel in a telephone network and/or can be stored in the memories (204, 205) of the second microcomputer system (203).

Description

Field of technology

The invention relates to a device for communication between a television receiver and a telephone set connected to a telephone network. This device, on the one hand, transmits alphanumeric characters received by the television receiver by means of the television picture signal in the form of caption insertions into the active picture to the telephone set and, on the other hand, transmits signals to the television receiver received by the telephone set via the telephone network and operating commands entered via a control panel of the telephone set.

Prior art

In numerous television programmes, television stations of all kinds invite the viewer to perform specific activities during or after the programme, such as responding to opinion polls or prize questions, ordering goods or transferring donations to a specific account, by means of a telephone set. To this end, alphanumeric characters are inserted into particular teletext pages or, in most cases, directly into the television picture being transmitted at the time. These insertions generally contain, on the one hand, data such as a name, a password, an address of a television station, a mail-order firm or a bank in the form of alphanumeric characters and, on the other hand, data with purely numeric characters, such as telephone numbers, order numbers, account numbers and bank sorting codes.

The viewer therefore if necessary has to either note down the data manually or enter the required sequence of digits immediately into the storage device or dialling device of a telephone set while they appear on the screen in order to initiate the required activity spontaneously. Both activities require the full attention of the viewer and a certain degree of care when transmitting the data, which can ultimately lead to transmission errors and loss of information. However, with spontaneously initiated

activities, it is not possible to proceed with the appropriate degree of care. This can lead to rash actions which sometimes cannot be undone.

Devices are already known in which a television receiver is connected to a telephone set in order to transfer information from the telephone set to the television receiver.

E.g. DE-C2-36 34 836 discloses a remote-control device for a cable television system in a hospital, in which a patient can switch a television receiver in his room on and off, change over to a different programme site and connect the sound connection thereof to his headphone connection with the aid of a telephone set. This is effected by entering the appropriate digits into the dialling device of the telephone set. The telephone system transmits these digits to a central detection and control device which then transmits corresponding control commands in the form of serial pulse telegrams via separate data lines to a remote-control device situated in the relevant room. The remote-control device has means for receiving, decoding and evaluating the digital remote signals, which actuate a remote-control transmitter.

With the exception of the input panel, the remote-control transmitter contains all of the devices of a cordless remote control for television sets, the information being provided via an actuated key via the telephone system which transmits corresponding operating commands to the television receiver. At the same time, an acknowledgement is transmitted via the data line to the central detection and control device in order to determine, e.g. the connection time of premium programmes. The aerial lead-in of the television set or the lighting circuit can also be used as the data line.

According to a development of the invention, additional functions are also performed, e.g. controlling teletext displays. E.g. the patient can therefore request hospital-specific or patient-specific teletext pages or pictures on a specific special television channel to which only the corresponding telephone connection has access at the time of the query by means of the selecting device of the telephone set via the detection and control device. E.g. a menu can therefore be displayed on the screen and the patient can select his meal via the push-buttons of the telephone set. A doctor can request the case notes for the respective patient and have them transmitted to the

hospital room or the patient can have his telephone and television account displayed on the screen.

In the device described, the remote-control device is always actuated via the telephone network, the detection and control device and the additional data line. There is no direct actuation of the television receiver via the telephone set. A device of this kind is therefore not suitable for use in private households.

It is also impossible for information transmitted by the television signal to the television receiver to be transferred to the telephone set.

DE-C2-38 19 863 furthermore discloses a device for the remote control of an electronic device, in particular a video recorder, in which control information, such as channel number, date, start and end time of television programmes to be recorded, can be transmitted via a general telephone network from an external telephone set to a telephone set situated at the location of the device.

The telephone set at the location of the device has a control device to which a remote-control transmitter for the wireless transmission of remote signals to the electronic device is connected.

In this device once again, there is no direct actuation of the television receiver via the telephone set and it is also impossible to transmit information to the telephone set at the request of the viewer.

A method of simplifying the programming of video recorders is furthermore known from the printed publication RUNDFUNKTECHNISCHE MITTEILUNGEN, Vol. 30, No. 5, Sept.-Oct. 1986, pp. 223-229, Norderstedt, DE; G. EITZ et al.: "Videotext programmiert Videoheimg r t (VPV)" [Home video programming by teletext]. The recording requirements are entered by automatic transfer of the required information from teletext programme pages on which a desired item is advertised. The video recorder is controlled by the VPS data also transmitted in the data line 16. Operation is simplified in that the viewer marks the desired item on a selected teletext programme page with a remote control.

After that, the video recorder automatically programmes the information contained in the teletext pages. Although the method selectively evaluates alphanumeric characters transmitted by the television picture signal and uses these to initiate specific activities, this is only possible with the aid of a corresponding teletext page. There is no communication link between the two devices.

The aim of the invention is to provide a device for communication between a television receiver and a telephone set allowing for the selection of inserted data received by a television receiver via the picture signal by means of the input panel of a television set in order to transfer this data directly by means of the telephone set together with other data identifying specific operating states of the television receiver and to transmit signals received by a telephone set via the input panel or a telephone channel to the television receiver.

Nature of the invention

When solving the problem, the invention departs from the following facts:

With the developments in the field of mobile telephones, many households have access to very handy telephone sets which can be operated in a cordless manner and already contain a plurality of electronic means which, with a little additional technical work, are additionally suitable for use as remote controls in a remote-control system.

A mobile telephone known per se has an input panel for numeric characters and for special characters for control functions, a multi-line display for alphanumeric characters and a microcomputer system with the corresponding wiring, such as storage circuits and software and hardware components for receiving, decoding, storing, coding, outputting and displaying information in the form of signals and characters.

A television receiver with a screen and a remotely controllable digital tuning and storage system also has a microcomputer system with storage circuits for receiving, decoding, storing, coding and emitting signals and displaying information in picture form.

The invention solves the problem in that a coding and modulating device for generating remote signals for a television receiver is additionally arranged in a telephone set of this kind and is connected to an infrared transmitter. The telephone set according to the invention furthermore contains a receiver for cordless reception and for converting data signals into signals which can be transmitted on a telephone channel and can be stored in the memory of the telephone set.

The television receiver contains a reading device by means of which part of the picture signal can be selected, digitised and stored. This part of the picture signal consists of identical time intervals of successive picture lines of the active line signal, each having the same temporal position relative to the line-synchronising signal. The output of the reading device is connected to an analyser. The analyser contains a microprocessor which analyses the signal structure of the stored part of the picture signal and compares it with internally stored structural patterns.

Data in the form of alphanumeric characters inserted into the active picture signal can thus be recognised and converted into sequences of binary-coded characters. A character transmitter in the television receiver codes, modulates and transmits these characters to the telephone set.

The device according to the invention therefore serves, on the one hand, for the transmission of alphanumeric characters from the picture signal of the television receiver to the telephone set and, on the other hand, for the transmission of signals from the telephone network and signals entered into the input panel of the telephone set to the television receiver.

In contrast to known solutions, the telephone set according to the invention itself converts the entries made via the keyboard into signals and transmits these directly to the television receiver.

In a development of the invention, the microcomputer system of the television receiver is designed in such a manner that it controls the course of a communication process automatically by means of a display menu on the television screen and a cursor system. Required data inputs can thus be requested by the user and information produced as a result of the communication displayed, on the one hand, in

a simple manner by means of the display in the telephone set and, on the other hand, in a convenient manner using the television screen.

Preferred embodiment of the invention

The invention will now be described by way of one embodiment. In the associated drawings:

Fig. 1 is a block diagram of the basic design of a television receiver according to the invention;

Fig. 2 is a block diagram of the reading device of the television receiver according to the invention;

Fig. 3 shows an extended embodiment of a television receiver according to the invention, and

Fig. 4 is a block diagram of a telephone set according to the invention.

A television receiver 100 known per se shown in Fig. 1 with a remote-control system contains an HF receiving component 101 for receiving and demodulating a television signal which is modulated by a CVBS signal, a video signal component 102 which extracts an RGB signal from the CVBS signal in order to actuate a picture tube 103 with a screen 104 and, alongside an audio component (not shown), a digital tuning and storage system which, together with a microcomputer system 105, forms the central unit of the remote-control system and allows, e.g. via a data bus 106, for the switching on and off of the television receiver 100, the selection of the broadcasting station, the varying of setting values for picture and sound and the switching over to specific functions of the device.

The microcomputer system 105 contains in a known manner a decoder for remote signals RS, memories for transmitting frequencies and picture and sound setting values, memories for picture signal patterns for displaying alphanumeric characters on the screen 104 and a processor for executing and controlling the functions of the television receiver 100 and can be actuated via a remote-control receiver 107 with an infrared sensor IRS by means of infrared signals.

The television receiver 100 furthermore also contains a teletext component 108 for separating, decoding and storing teletext signals from the CVBS signal and generating and RGB signal for displaying teletext pages on the screen 104.

In addition to these known modules, the television receiver 100 according to the invention contains a reading device 109 for selecting, storing and analysing time intervals of the CVBS signal. The reading device 109 allows serial time intervals of the CVBS signal in which caption insertions with a text line are situated and which represent a band in the television picture to be selected, optically marked, digitally stored and evaluated by the remote-control system.

The reading device 109 can be designed, e.g. as shown in Fig. 2. It contains a gate circuit 110 with a signal input and a control input, an analog/digital converter 111, a pixel memory 112, a read-out controller 113 and an analyser 114. The CVBS signal is present at the signal input of the gate circuit 110. The control input of the gate circuit 110 is connected to the read-out controller 113 and serves to generate a data window which activates the gate circuit with both fields for the time intervals with the inserted signal of a text line. This is effected by means of a control signal generated within a field by the read-out controller 113 by way of the current line number of the currently transmitted picture line. To this end, the read-out controller 113 is connected to the vertical and horizontal synchronising signal V_{Sync} and H_{Sync} separated from the CVBS signal in the video signal component 102, and to the data bus 106. The read-out controller 113 therefore controls the times in which the gate circuit 110 transfers the CVBS signal to the input of the digital/analog converter 111. It contains a picture line counter for determining the line number of the currently transmitted picture line and a comparator which compares the current line number with reference numbers identifying the set position and the width of the selected band.

The microcomputer system 105 provides the reference numbers via the data bus 106, wherein these can be varied by means of the remote-control system and pre-set to common values so that the width and position of the band can be set in a simple manner by means of cursor keys on the input panel of a remote control.

Whereas the gate circuit 110 for the CVBS signal is transparent, the microcomputer system 105 marks the position of the band in the television picture, e.g. by means of colour and/or brightness shifting on the screen 104, by way of the reference numbers set. Activation of the gate circuit 110 means that the CVBS signal is only present at the input of the analog/digital converter 11 at the time during which a relevant inserted text line is transmitted. The analog/digital converter 111 converts the CVBS signal into corresponding digital values during the selected time intervals and stores the latter in the form of a pixel signalling pattern in the pixel memory 112.

As caption insertions in practice never start or end directly at the edges of the screen, it is not necessary to read out the complete signal of the active picture lines from the picture lines of the band. The gate circuit 110 can be activated in such a manner that, e.g. the first and the last signal portions of the picture lines do not have to be digitised and stored.

Memory capacity and evaluating time can be saved in this manner.

The pixel memory 112 has a parallel data output at which the digital values of a plurality of successive picture lines can be retrieved simultaneously and to which the analyser 114 is connected. The latter contains a microprocessor 115 which is connected to a digital character pattern memory 116.

Reference structures of the picture signal of alphanumeric characters are stored digitally in the character pattern memory 116. The microprocessor 115 retrieves the digital values of the CVBS signal stored in the pixel memory 112 and compares these with the structures of picture signals stored in the character pattern memory 116. The alphanumeric characters contained in the television picture signal are thus recognised, converted into a sequence of binary-coded data and made available for retrieval at the output of the analyser 114.

As shown in Fig. 2, the analyser 114 contains a data output O_{dat} to which a character transmitter 117 comprising a coding and modulating device and a driver for actuating a transmission element 118 is connected. In the example shown, the transmission element is an infrared diode. However, in another embodiment of the invention, it can also be a transmitting aerial for an HF signal. The coding and modulating device

converts the binary-coded data into a data signal DS consisting of serial pulse words each with an address component and a data component in the character transmitter 117. The transmission element 118 transmits this data signal DS in a wireless manner.

The serial code words in the address component thus contain different addresses from the remote signals of the television receiver 100. This measure is necessary in order to prevent the code words emitted by the transmission element 118 from being transmitted back to the microcomputer system 105 of the television receiver 100 via the remote-control receiver 107 and causing control errors.

In order to increase the reliability of the recognition by the analyser 114, means for increasing the contrast which shift the distribution of the brightness and/or colour values in the luminance and/or chrominance signal towards extreme values can also be arranged in front of the pixel memory 112. This has the advantage that the influence of signal noises and brightness and colour patterns in the background of the caption insertion during analysing can be suppressed.

In the embodiment shown, the individual stages of the reading device 109 and the character transmitter 117 have been shown as separate signal stages for the sake of clarity of the invention. However, in the practical embodiment of the invention, it is advantageous to produce the greater part of these signal stages with the aid of the microcomputer system 105. This applies, in particular, to the read-out controller 113 and the analyser 114.

Deviating from the representation of Fig. 2, the reading device 109 can also be designed in such a manner that a band having caption insertions over several text lines is read out by the gate circuit 110. These time intervals of the CVBS signal are also converted by the analog/digital converter 111 and are stored in a correspondingly larger pixel memory 112. Before the analyser 114 analyses the stored digital values of the CVBS signals and converts recognised alphanumeric characters into binary-coded characters, the band stored in the pixel memory 112 is retrieved via the microcomputer system and is displayed on the screen 104 in the form of a still frame by a still frame signal generator (not shown in the drawings) also connected to a

cursor system. The relevant alphanumeric characters can then be marked for analysis by the cursor system and instructions for data management, such as the fixing of a storage address, a method of use and the like, can be provided.

Compared to the reading device first described, this reading device displays the reliability and ease of operation essential for the transfer of caption insertions, as supplementary data not provided for use in the telephone network, such as names, designations and addresses, can also be read out and stored.

In a development of the invention, as shown in Fig. 3, a teletext generator 120 is additionally connected to the data bus 106 of the television receiver 100 in addition to the modules already mentioned and is connected to a program memory 121 and a page memory 122 for teletext pages and a cursor controller 123. The page memory situated in the teletext component 108 can advantageously be used. The teletext generator 120 has a signal converter. This converts the binary-coded data arriving at the microcomputer system 105 in the form of code words for the remote-control system and corresponding to the optically displayable characters into the signal form of the teletext system.

Both the binary-coded data from the data output of the analyser 114 and the binary-coded data transmitted from the telephone set 200 to the television receiver by infrared means can thus be loaded into the page memory 122 of the teletext system.

The teletext generator 120 allows its own special teletext pages to be generated from this binary-coded data by means of generator programs stored in the program memory 121. These teletext pages can be stored in the page memory 122, displayed on the screen 104 of the television receiver in the form of special teletext pages upon request and processed by the cursor controller 123.

In a further development of the invention, the television receiver 100 has a device for marking and reading out caption insertions from the teletext component 108, the output of which is also connected to the character transmitter 117. A device of this kind is known from the programming system "Videotext programmiert Videoheimgerät (VPV)" [Home video programming by teletext] and therefore does not have to be described here.

Fig. 4 shows a telephone set 200 extended in accordance with the invention. In this embodiment, it is a mobile telephone containing in the known manner an input panel 201, a display 202 for alphanumeric characters stored or entered via the input panel 201, a microcomputer system 203 with a volatile memory 204 serving as a main memory, a non-volatile memory 205 for call numbers, names and addresses, an automatic dialling device 206 and a touchtone dialling device 207. A coding and modulating device 208 is moreover provided for generating remote signals RS which, with respect to the address component and data component, are similar to the code words generated by a remote control for the television receiver 100, but have an extended character set.

The coding and modulating device 208 can be formed by the microcomputer system 203 and is connected to an infrared transmitter 209.

The character set of the coding and modulating device 208 is extended in such a manner that additional characters are generated and can be transmitted via the remote-control system to the television receiver 100 in order to image them on the screen 104 in the form of text or graphics.

The telephone set 200 moreover comprises a receiving and transmitting device 210 by means of which a connection can be established with a telephone network.

According to the invention, the telephone set 200 contains a data receiver 211 for the wireless reception of the data signals DS emitted by the television receiver 100 via the transmission element 118.

The data receiver 211 is connected to a data decoder 212 and a data converter 213. The data decoder 212 decodes the data signal DS received and checks whether an infrared signal addressed to the telephone set 20 was received. In the case of a positive test result, the data converter 213 converts the characters transmitted by the data signal DS, stores them in the memory 204 of the microcomputer system 203 and displays them on the display 202. The result of the character analysis carried out by the analyser 114 can thus be checked. The data converter 213 converts the code words of the data signal DS into signals suitable for use in the microcomputer system 203 in the telephone set 200.

The device according to the invention allows, on the one hand, for the selection of characters which can be transmitted in the form of caption insertions into the television picture of a television programme by means of the television signal independently of a teletext system by means of the input panel 201 of the telephone set 200, the wireless transmission of selected characters to the microcomputer system 203 of the telephone set 200, the display of these characters in the display 202 in order to check that they are correct and the transfer thereof to the memory 204 in order to use the selected characters as required in a telephone network.

On the other hand, as is known, remote signals RS can be transmitted from the telephone set 200 to the television receiver 100.

The microprocessors of both devices can thus carry out a dialogue and exchange data automatically, the telephone set 200, which is advantageously a mobile telephone, simultaneously being designed and programmed in such a manner that it can be used instead of the remote control of the television receiver independently of a telephone network and can carry out at least the main functions thereof.

The device according to the invention has the advantage that neither the existing transmission standard for television transmission nor the standard relating to the telephone system has to be altered in order to establish the communication link.

The device according to the invention can be produced exclusively at the receiving end by the television receiver and telephone set manufacturer.

At the transmitting end, the probability of the correct recognition of caption insertions can be increased by using a preferred font, a preferred position for the beginning of the caption insertion in the FBAS signal and by using specific colours for characters and/or background.

E.g. the recording of names, addresses and call numbers in the non-volatile memory 205 of the telephone set 200 can be simplified by the device according to the invention. It is furthermore possible to actuate the automatic dialling device 206 of the telephone set 200 by means of temporarily stored call numbers transmitted by the television receiver 100 and, if desired, to transmit data, e.g. representing order numbers, customer, code or account numbers and also transmitted by the television

receiver 100, to a telephone channel of the telephone network by the ton dialling device 207.

By virtue of the development of the invention, a convenient display and management system for data present both in the memory of the microcomputer system 105 in the television receiver 100 and in the memories 204 and 205 of the telephone set 200 can be installed, e.g. in the microcomputer system 105, actuated by means of the cursor controller 123 and controlling and assisting the progress of a communication process.

Required data inputs can thus be requested by the user and information produced as a result of the communication displayed and managed, on the one hand, in the conventional manner by the display 202 in the telephone set 200 and, on the other hand, substantially more conveniently using the screen 104.

A system of this kind can advantageously be used for running a business according to the principle of what is referred to as "teleshopping" in which an offer is made by a mail-order firm within a television programme and it is possible to initiate an order by telephone via a telephone network.

Before the telephone set establishes a connection with the firm via a telephone channel, a viewer can look at the data read out of the television signal by the reading device 109 and now found in the page memory 122 at his leisure via the special menu program stored in the program memory 121. This data may contain, e.g. the name of the firm, its call number, an order number for the goods, a designation and the price of the goods. For telephone ordering, however, the call number of the firm, the order number, the number of products to be delivered, possibly a size and the numbers of an association where the account is held, a customer number or a credit card number are required. The corresponding menu program supplements the required ordering data, in that it requests the viewer to enter, e.g. a piece number, size, colour choice and association where the account is held, establishes the telephone connection with the firm, transmits the data to the firm, waits for conformation if necessary and enters this data together with the data not required by the firm, such as name of the firm, price and designation of the goods, in a non-volatile memory in the television receiver 100.

A memory of this kind can advantageously contain the data format of a teletext page and the order is stored in the data format of a teletext page.

In a similar manner, the device according to the invention can be used to make transfers from the user's own account to another account.

This device furthermore offers the operator of premium television programmes according to what is referred to as a "pay TV system" the possibility of transmitting the corresponding code for decoding coded television signals of the pay TV system to a television receiver 100 for his own internal receiving decoder via a telephone network.

Legend

100	television receiver
101	HF receiving component
102	video signal component
103	picture tube
104	screen
105	microcomputer system
106	data bus
107	remote-control receiver
108	teletext component
109	reading device
110	gate circuit
111	analog/digital converter
112	pixel memory
113	read-out controller
114	analyser
115	microprocessor
116	character pattern memory
117	character transmitter
118	transmission element
120	teletext generator
121	program memory
122	page memory
123	cursor controller
200	telephone set
210	input panel
202	display
203	microcomputer system
204	volatile memory
205	non-volatile memory

- 206 automatic dialling device
- 207 touchtone dialling device
- 208 coding and modulating device
- 209 infrared transmitter
- 210 receiving and transmitting device
- 211 data receiver
- 212 data decoder
- 213 data converter

Claims

1. Device for communication between:
 - a television receiver (100) with a screen (104) and a tuning and storage system in the form of a first microcomputer system (105) which can be operated by means of remote signals (RS), which receives a CVBS signal containing time intervals in which alphanumeric characters are transmitted
 - and a telephone set (200) with an input panel (201), a display (202) for alphanumeric characters, a second microcomputer system (203) with memories (204, 205), a coding and modulating device (208) for generating the remote signals (RS) for the television receiver (100) and an infrared transmitter (209) for transmitting the remote signals (RS), characterised in that the television receiver (100) contains:
 - a reading device (109) with a temporal data window which can be controlled by means of the first microcomputer system (105), and an analyser (114) for selecting and analysing the time intervals, for recognising the alphanumeric characters in the CVBS signal and for converting these characters into binary-coded characters,
 - and a character transmitter (117) for transmitting the binary-coded characters in the form of a data signal (DS) and that the telephone set (200) contains means (211, 212 and 213) for receiving and converting the data signal (DS) into characters which can be transmitted on a telephone channel in a telephone network and/or can be stored in the memories (204, 205) of the second microcomputer system (203).
2. Device according to claim 1, characterised in that the television receiver (100) which receives a CVBS signal containing time intervals corresponding to caption insertions with alphanumeric characters in the active part which can be displayed on the screen (104) has a reading device (109) containing the following components:
 - a gate circuit (110) with a read-out controller (113) for generating the data window in the form of time intervals in the CVBS signal.

- an analog/digital converter (111) connected to the output of the gate circuit for digitising the CVBS signal during the selected time intervals.
 - a pixel memory (112) for the digitised CVBS signal.
 - the analyser (114) for the stored CVBS signal connected to a character pattern memory (116) for reference structures of the picture signal of alphanumeric characters for recognising the characters in the stored CVBS signal by comparison with the reference structures and for generating corresponding binary-coded characters.
3. Device according to claim 1, characterised in that the character transmitter (117) has a coding and modulating device and a driver for actuating a transmission element (118) and is connected to the analyser (114) for wireless transmission of the data signal (DS).
 4. Device according to claim 3, characterised in that the character transmitter (117) has a coding and modulating device for converting the binary-coded characters into serial pulse words and the transmission element (118) is an infrared light-emitting diode.
 5. Device according to claims 1 and 2, characterised in that the reading device (109) contains a still frame signal generator connected to a cursor control system in the signal path between the pixel memory (112) and the analyser (114) for imaging the CVBS signal read out and stored on the screen (104) and for marking alphanumeric characters.
 6. Device according to claims 1 and 2, characterised in that the reading device (109) contains means for increasing the contrast in front of the pixel memory (112) in the signal path, these means shifting the distribution of the brightness and/or colour values in the luminance and/or chrominance signal towards extreme values.
 7. Device according to claim 1, characterised in that a teletext generator (120) is connected to the data bus (106) of the first microcomputer system (105) in the television receiver (100) for generating teletext pages from the binary-coded data, connected to a program memory (121) for programs for generating teletext pages

and a page memory (122) for teletext pages and a cursor controller (123) for marking parts of teletext pages.

8. Device according to claim 1, characterised in that the television receiver (100) has a device for marking and reading out characters from the teletext component (108) which is also connected to the character transmitter (117).
9. Device according to claim 1, characterised in that the microcomputer system (203) in the telephone set (200) contains a program circuit for transmitting alphanumeric characters instead of the remote signals (RS) via the coding and modulating device (208) and the infrared transmitter (209) and that the microcomputer system (203) in the television receiver (100) has a program circuit for imaging the alphanumeric characters on the screen (104).

4 pages of drawings

FIGURE 1

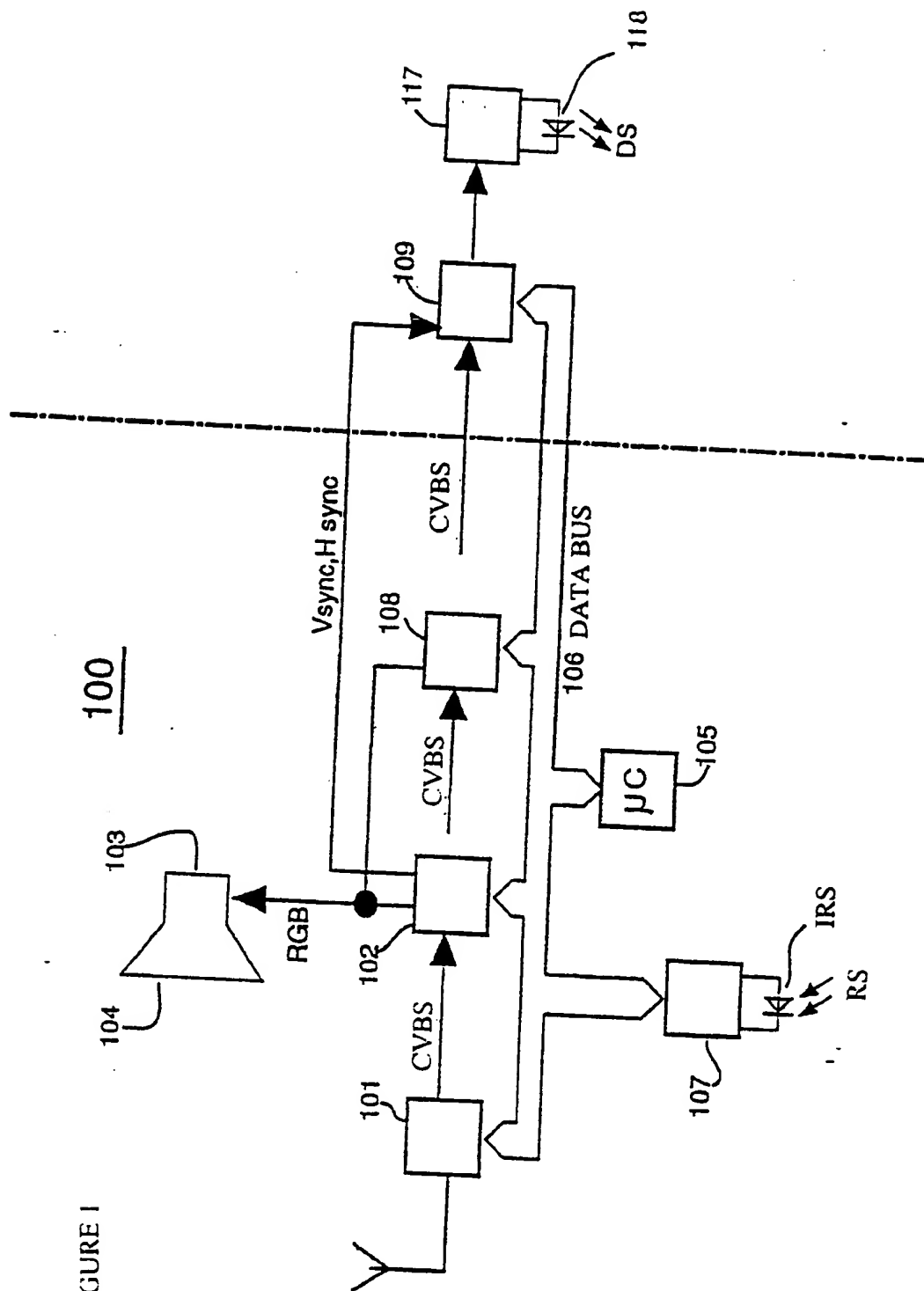


FIGURE 2

109

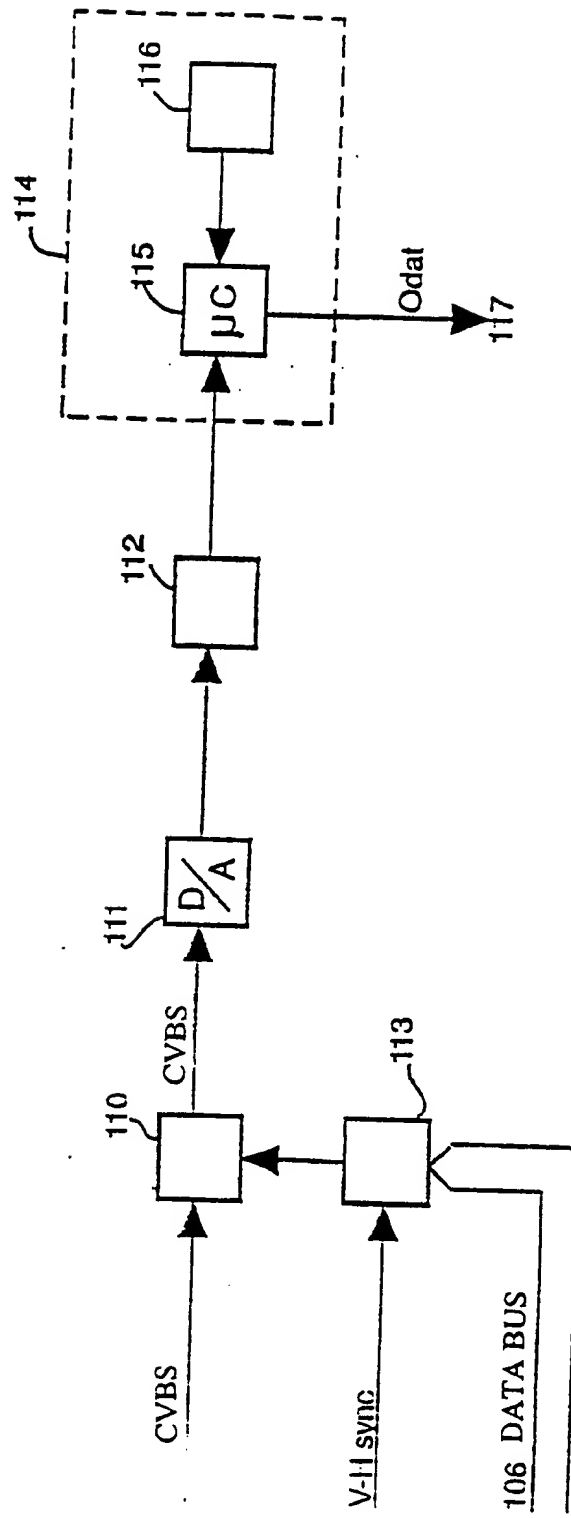


FIGURE 3

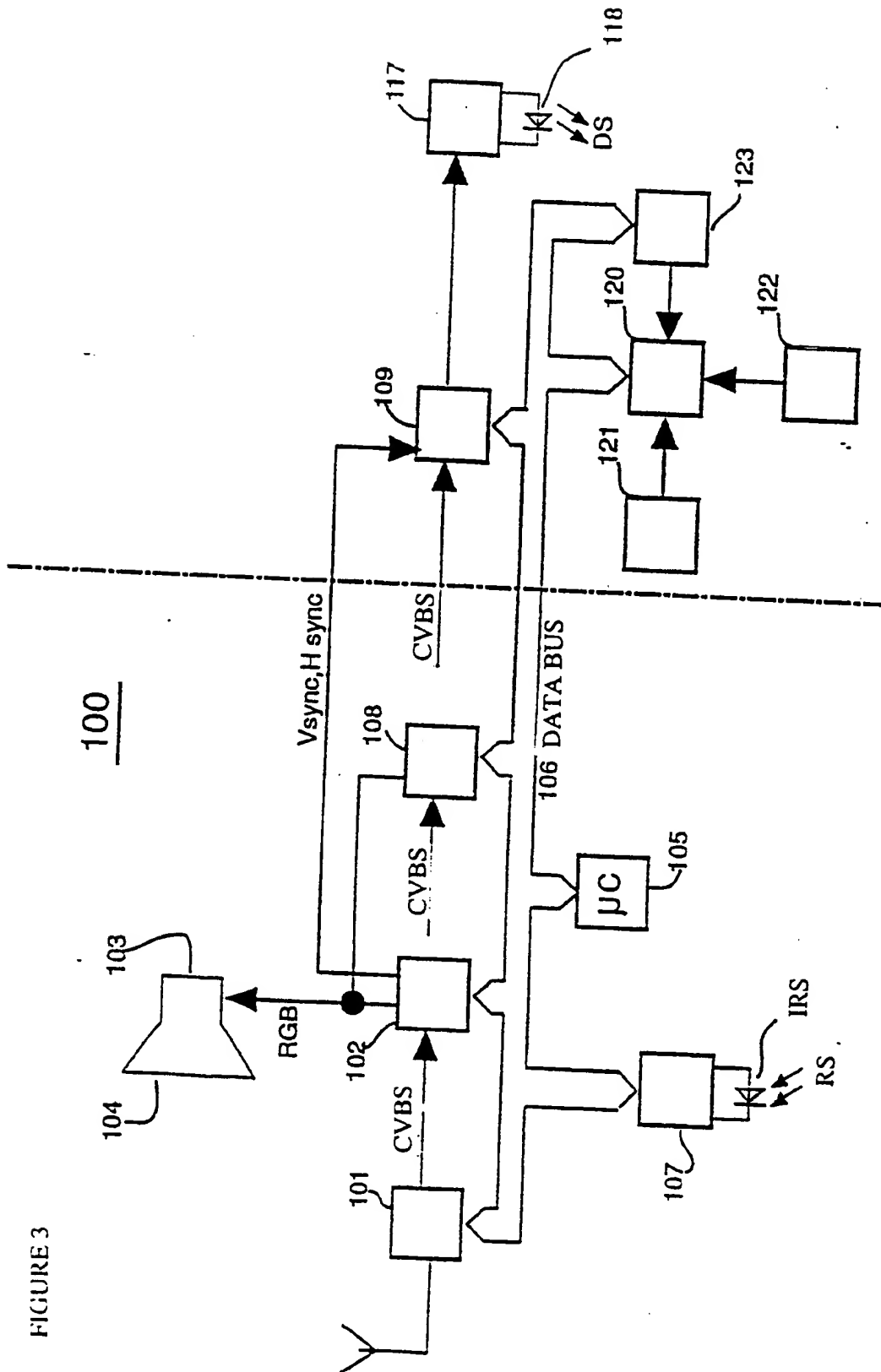
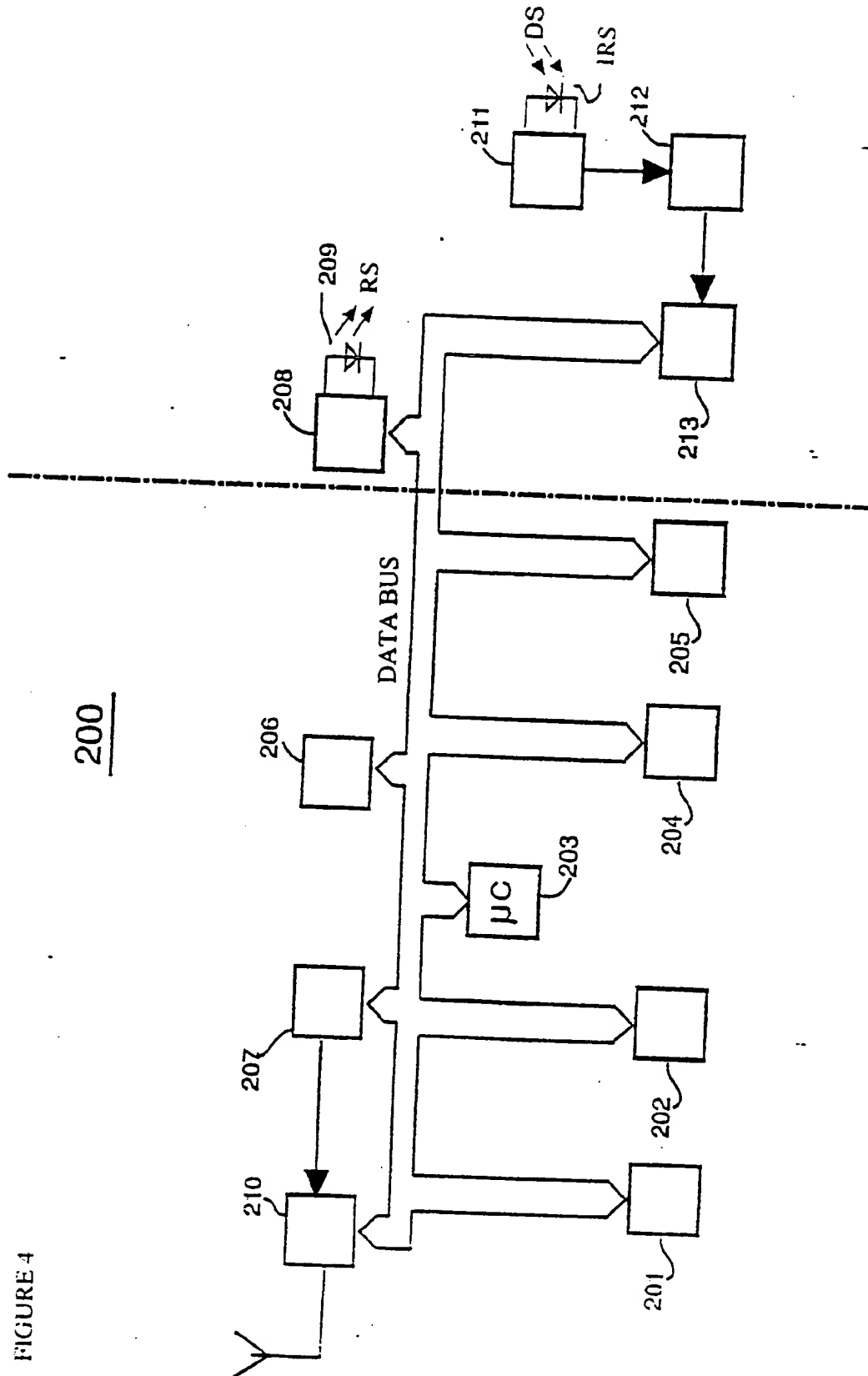


FIGURE 4



200

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